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RAPID ASSESSMENT OF FACTORS AFFECTING SEOS IN EU CITIES



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DISCLAIMER

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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ACRONYMS

| | |
|------------|---|
| BAU | Business AS Usual (scenario) |
| BEI | Baseline Emission Inventory |
| CIS | Commonwealth of Independent States |
| CoM | Covenant of Mayors |
| EA | Energy Agencies |
| EE | Energy Efficiency |
| EPC | Energy Performance Contracting |
| ESCOs | Energy Service Companies |
| ESPCs | Energy Service Provider Companies |
| EU | European Union |
| GHG | Green House Gasses |
| GIZ | Deutsche Gesellschaft für Internationale Zusammenarbeit |
| GWP | Global Warming Potential |
| IPCC | Intergovernmental Panel on Climate Change |
| JRC | Joint Research Centre |
| MUNI-EIPMP | Municipal Emission Inventory, Projection and Mitigation Planning Tool |
| NCV | Net Calorific Value |
| SEAP | Sustainable Energy Action Plan |
| UNDP | United Nations Development Programme |

EXECUTIVE SUMMARY

This desk study was carried out in order to assess factors affecting Sustainable Energy Offices (SEOs) established in European Union (EU) cities and to analyze the potential for establishing SEOs in Georgia based on experience in European countries.

The research showed that, at this stage, an institutional arrangement with a given specific name, i.e. SEO, and/or an organization with a special legal status, is not widespread in Europe. No concrete examples of SEOs was found in any of the European countries.

Therefore, the current desktop study researched and analyzed energy service providers with similar institutional formats and functions, such as Energy Service Companies (ESCOs) and Energy Agencies (EA) existing in different European countries, in order to synthesize relevant experience and lessons learned and elaborate recommendations for a potential energy efficiency provider with the most suitable legal and institutional format for Georgian context and reality.

The following reports were used as the main reference documents for the presented report - "Feasibility Study" prepared by the GIZ. It should be also noted, that within the current report the terms ESCO as well EA are referred to as umbrella names for energy service providers, energy performance providers, energy efficiency providers or community based energy service companies.

This report is the result of desk review of the following studies: European ESCO (Energy Service Companies) market report-2013 conducted by the Joint Research Center of the EU¹, "Energy Agency of Tbilisi City"- Feasibility Study conducted by GIZ in 2012². "Sustainable Energy and Human Development in Europe and the CIS" prepared by the UNDP in 2014³, outcomes and reports of different workshops organized for promotion of energy efficiency and renewable energy providers.

The report covers the activities, legal status and financing channels of ESCOs and EAs with examples from Spain, Austria, Belgium, Bulgaria, Denmark, Finland, France, Cyprus, Croatia, Estonia, Czech Republic, Moldova, Ukraine, Russia. We next discuss and analyze the barriers for improvement of energy efficiency performance through ESCO and present the strengths of ESCOs and EAs. We then draw conclusions for possible SEOs in Georgia based on information and analysis of previous chapters. Lastly, we discuss and recommend potential financial mechanisms for SEOs in Georgia.

Considering all barriers to development of ESCOs in Georgia as well as experience of developed countries related to ESCO market development, the report concludes that at this stage it will be less efficient to establish a commercially-oriented energy efficiency provider with a structure and format similar to ESCOs as it requires a well-developed legal basis as well as high-living standards. Therefore at the initial stage, we recommend establishing energy efficiency provider institutions similar to EAs with shared support from the public sector and international donors. The authors propose that the Joint

¹The European ESCO market report 2013. <http://iet.jrc.ec.europa.eu/energyefficiency/escos>

²http://www.economicforum.ge/upload/files/Energy%20Agency%20Tbilisi_Feasibility%20Study_Final%20Version_21_12_2011.pdf

³<http://www.tr.undp.org/content/dam/turkey/docs/Publications/EnvSust/UNDP,2014-Sustainable%20Energy%20and%20Human%20Development%20in%20Europe%20and%20the%20CIS.pdf>

Research Center (JRC) of the Covenant of Mayors (CoM) initiative could become a real catalyzer of future success in this direction. Establishment of regional and/or municipal EAs (possibly with a different name and adjusted institutional structure and legal arrangement) supporting local authorities in development and implementation of SEAPs is identified as the most realistic and effective starting-point in the process of development of SEOs in Georgia.

INTRODUCTION

Europe is both the world's second largest consumer of energy and one of the most energy-efficient continents. With challenges of growing electricity demand and dependence on imported fuels, national policies are moving towards creating a coherent approach to energy security. Both EU and non-EU countries have acknowledged the need to build and modernize their energy infrastructures and increase efficiency.

As a response to the above challenges, during the last decade the European Union and its Member States have dedicated large efforts to cut energy waste and improve energy efficiency on both the demand and supply sides. In parallel, energy users have been increasingly interested in cutting their energy costs, applying sustainable construction methods, and searching for long term, trustful, financially viable solutions to energy use. To realize these goals in practice, it's very important that these aspirations be backed up by financial solutions, technical and technological expertise, management creativity, market knowledge and communication abilities. Energy Service Companies (ESCOs) in their variety of structures, financial options, and services provided, are able to offer most of these requirements and thus have become an integral part of the European energy efficiency market.

Overviewed studies and workshop materials demonstrated that ESCOs, ESPCs (Energy Service Provider Companies) and EA (Energy Agencies) are the main players promoting the sustainable energy concept in the EU, non-EU and neighboring countries. The EU JRC report focuses on different types of ESCOs. The GIZ feasibility study was prepared as a background paper for establishment of the Tbilisi energy efficiency center, and considers mainly Energy Agencies which are non-profit organizations.

According to the JRC report on the European ESCO market, the lack of a common definition, and a clear and simple identification of ESCOs, was regularly quoted as the main barriers to the wider spread of the ESCO model in Europe, because it resulted in problems with trust and therefore a limitation in ESCO project demand. Definitions have been provided lately, which are meant to be used Europe-wide and, as a consequence, it has become somewhat easier to overcome problems with understanding and trusting the ESCO concept. The first common standard meaning was put forward by the EN 15900 standard in 2010, and later by the Energy Efficiency Directive (EED, 2012/27/EU) in 2012.

The EED defines an 'energy service provider' as a "natural or legal person who delivers energy services or other energy efficiency improvement measures in a final customer's facility or premises", while 'energy performance contracting' (EPC) is understood as a "contractual arrangement between the beneficiary and the provider of an energy efficiency improvement measure, verified and monitored during the whole term of the contract, where investments (work, supply or service) in that measure are paid for in relation to a contractually agreed level of energy efficiency improvement or other agreed energy performance criterion, such as financial savings".

In its report, the JRC uses a slightly different definition of an ESCO, considering it as an umbrella name for energy service providers, energy performance providers, energy efficiency providers or community based energy service companies. From the JRC's perspective an ESCO is "a company that offers energy services which should include implementing energy-efficiency projects (and other sustainable energy projects)". Many ESCOs provide complete and all-inclusive services. From the report:

Most efficient building –tower in Europe

The new addition to the KfW's Frankfurt headquarters by Sauerbruch Hutton is an aggressively engineered and colorful tower which is aiming for an astonishingly low energy consumption of 0.013 kW hr per square meter each year. That's more than two times more efficient than code, but the occupants actually benefit as the building is naturally cooled by fresh prevailing breezes thanks to a unique double skin composed of thousands of computer-controlled windows which let just the right amount of air in.

Sauerbruch Hutton designed the building to harmonize with its surrounding environs. The shape of the building is angled to let the prevailing breezes slip by, reducing uneven air pressures across its surface. The saw-tooth façade of the 37,200 square meters tower controls, with great precision, the amount of air that enters the building. Environmental monitors on the exterior and interior calculate when and how much the exterior windows should open, accounting for wind direction, temperature and speed.

The incoming air pressurizes the envelope sending fresh air evenly through floor vents around the exterior floor plate. Occupant can also open the interior windows to access the breeze. All of this engineering effort is to reduce cooling equipment demand to just for a couple of months of the year and supply healthy air without creating a disruptive breeze, especially near the windows. The double windows also cut incoming heat gain significantly while still providing ample natural light. The building also uses waste heat from the server rooms to preheat floor slabs and it distributes heat efficiently via a raised floor distribution system.

The building is a perfect example of how energy-efficient design can create a healthier work environment. The building's colorful façade is layered with a different hue for each level, and it has been awarded the Best Tall Building in Europe. The tower is undergoing energy efficiency tests this summer to determine if it has earned the crown for the most efficient building in Europe.

SECTION ONE: ROLE OF ESCOS/ESPCS/EAS IN IMPROVEMENT OF EE AND SPREAD OF EE AND RENEWABLE TECHNOLOGIES

EU and all EU countries have EE targets which are allocated in EE national plans and which facilitates establishment of ESCOs, ESPC, EAs, etc. These EE targets are main drivers for EE service companies in EU countries. The National Energy Efficiency Action Plans offer an opportunity to compare the national energy efficiency measures in the European countries and review the actual national achievements compared to the targets.

The main services provided by these stakeholders include a wide range of activities, such as: energy analysis and audits; energy management; project design and implementation; maintenance and operation; monitoring and evaluation of savings; property/facility management; energy and/or equipment supply; provision of service (space heating/cooling, lighting, etc.); advice and training; etc.

ESCOs, Energy Service Performance Companies (ESPC) and Community ESCOs are considered in an EU ESCOs market study⁴.

In the mentioned market study carried out by the European Commission's Joint Research Center, the three main characteristics of an ESCO are:

- ESCOs guarantee energy savings and/or provision of the same level of energy service at lower cost. This is referred to as a performance guarantee, which can take several forms. It can revolve around the actual flow of energy savings from a project, can stipulate that the energy savings will be sufficient to repay monthly debt service costs, or that the same level of energy service is provided for less money.
- The remuneration of ESCOs is directly tied to the energy savings achieved;
- ESCOs can finance, or assist in arranging financing for the operation of an energy system by providing a savings guarantee.

Based on these functions, ESCOs accept some degree of risk for the achievement of improved energy efficiency in a user's facility and have their payment for the services delivered based (either in whole or at least in part) on the achievement of those energy efficiency improvements.

Companies that offer energy services to final energy users, including the supply and installation of energy-efficient equipment, the supply of energy, and/or building refurbishment, maintenance and operation, or facility management, are Energy Service Provider Companies (ESPCs). They may be consultants specialized in efficiency improvements, equipment manufacturers or utilities. ESPCs provide a service for a fixed fee or as added value to the supply of equipment or energy – as opposed to ESCOs. *ESPC may have some incentives to reduce consumption, but these are not as clear as in the ESCO approach.* Often the full cost of energy services is recovered in the fee, so the ESPC does not assume any risk in case of underperformance. *ESPC is paid a fee for their advice or equipment rather than being paid based on the results of their recommendations.*

⁴The European ESCO market report 2013. <http://iet.jrc.ec.europa.eu/energyefficiency/esco>

ESCOs and ESPCs are typically profit-oriented private (sometimes public) organizations. However, in recent years non-profit arrangements have come into existence. For example, an ESCO may be set up, run and owned by a community, where this company replaces the traditional energy supplier. A so called “Community ESCO” would not aim for profits, but would reinvest its gains in the local energy system (or in other parts of the local economy). An already working example is found in the UK, while Hungary has plans to transform one of the ESCO projects where a large number of multi-apartment buildings and their supply systems are renovated using a community ESCO approach. Through these organizations, pursuing sustainable development, climate goals, or other socially and environmentally benevolent goals overrides profits.

A feasibility study conducted by GIZ for establishment of Energy Agency (EA) in Tbilisi focuses on existing in Europe EAs. Unlike commercial ESCOs which are a mediator between the energy provider and end-user, the Energy Agencies are mainly oriented on implementation of governments’ directives, programs and projects providing similar services as ESCOs/ESPCs.

All existing energy agencies provide general and technical guidance on EE and RES (Renewable Energy Sources). They pool and transfer knowledge and information on rational energy supply, efficient energy use, and resources management and act as mediators and catalyst organizations in the context of governments, enterprises, and financing institutions they promoting the three objectives of energy policy: a secure, economically viable and environmentally friendly energy supply. Main services provided by EAs are listed in Table I on the example of Berlin Energy Agency.

Table I. Three types of fields of activity were identified in GIZ feasibility study.

| | |
|-------------------------------------|---|
| Information and motivation services | <ul style="list-style-type: none"> • promotion of innovative technologies and energy saving measures • public awareness raising and image campaigns • lectures, capacity building and training measures • mediation services (involving technical advisors, expert engineers, energy service companies, financing institutions) • consultancy to different target groups (consumers, governments, etc.) • networking and support to other energy agencies |
| Environmental Activities | <ul style="list-style-type: none"> • sales of market-based and cost-effective consulting services (e.g. energy audits, supply concepts, implementation of third-party financing models) • energy service company activities, including the planning, implementation, financing and operation of innovative technologies (e.g. CHP systems) • selling eco-friendly megawatts |
| Government tasks | <ul style="list-style-type: none"> • energy planning and standard setting • design, implementation and evaluation of programs, funding schemes and R&D activities • coordination of all governmental initiatives on EE • authorization procedures and law enforcement duties |

Source: Berlin Energy Agency (2011)

Energy agencies restricted to information and motivation services are often free of charge or charge only small fees, initial financial support for the agencies concerned is unavoidable (e.g. in the form of government grants, accumulated deficits, loans and advances, etc.). For this reason, they are often completely funded from public sources, especially if exclusively owned by public authorities. In this case, they are part of the public administration (as a department or subordinated agency). If some shares belong to private actors, the latter also contribute to the budget of the agency, which is then usually a non-commercial entity (i.e. a non-profit association or company).

Energy agencies pursuing entrepreneurial activities are usually limited liability companies (LLCs), and receive generally public and private funding in the framework of a public-private partnership. The public authorities expect their energy agency to operate as a partially private body that has to earn income. These agencies are often established in conjunction with the regional energy supply company or a banking institution in order to share costs but also to assure the involvement of other key actors. Income is generated through consulting activities and energy services. Some agencies engage in the energy supply of buildings.

Energy agencies carrying out government tasks are often (with rare exceptions) a government department or a subordinated agency and are entirely financed by the government. In a few countries or states (e.g. California and Norway) a part of the budget stems from a tax on energy. Funded by the state budget, these energy agencies often run (cost-intensive) funding schemes or R&D programs.

Information and motivation services are provided by virtually all energy agencies and can hence be regarded as their core activities. Regional and local agencies are often restricted to such services as government tasks, including legislative and regulatory tasks which are carried out only by national energy agencies.

It was observed that only a few energy agencies focus mainly on generating profits. Smaller agencies at the regional or local level are often organized as non-commercial entities, relying on member fees, grants or self-generated income. Many energy agencies remain dependent on continuous financial support even after the set-up phase (two to four years). The GiZ study's recommendation is that this possibility should be taken into consideration when establishing the City of Tbilisi energy agency. In Europe, a significant number of the smaller local and regional agencies received funding through the EU program SAVE (the EU's main non-technological, multi-annual program on EE established in 1996), which was superseded in 2003 by the Intelligent Energy Europe (IEE) program. For the first three years, the programs covered up to 50 percent of the set-up costs.

SEO (Sustainable Energy Offices) experience as such has not been found through this desk review, but most likely it should have a very similar structure, legal status and financing mechanism as Energy Agencies. However, many countries reviewed in section three plan that municipality CoM commitments will facilitate ESCO markets, which is true for countries where such markets already exist, and where it might be not enough for a start-up phase. Georgia (cities in Georgia) should start with energy agencies which will later have to facilitate the ESCO market.

OVERVIEW OF COUNTRIES' EXPERIENCE IN ESCO AND EA SERVICES

Annex I to this report demonstrates that among countries surveyed by the JRC (EU-28, Norway, Switzerland, Southeastern Europe-7, Eastern Europe and Transcaucasia-6, in total 43 countries) in 8 countries (19%) ESCO market doesn't exist at all and among them is Georgia. The successful stories are provided regarding 5 (12%) countries (Austria, Czech Republic, France, Germany and UK) and for four countries (Denmark, France, Ireland and Spain) strong growth is observed. The rest of countries are in preliminary stage with slow growth/decrease/stagnation.

Below are provided some examples of successful and non-successful ESCO markets and barriers to these markets in EU member states and in Eastern European countries provided by EU JRC.

ESCO MARKETS

1. Spanish ESCO Market

The Spanish ESCO market was valued at around 900 Million Euros in 2012, but was expected to grow by around 10-12% in 2013 according to ANESE, the representative body for ESCOs in Spain. Impressive figures you might think, but not without a solid basis. The European Investment Bank has recently launched a fund worth 123 Million Euros to invest in energy efficiency projects in Spain. Used correctly, this will not only stimulate activity but also help to publicize the ESCO model generally.

Spain has suffered financial difficulties in recent years which have become particularly acute in the last few months. Construction projects have all but ceased in recent months. But, the government is now taking firm measures to counter this in launching a National Building Rehabilitation Plan. Meanwhile, many cities are now tendering out public lighting under the ESCO model. Moreover, as many ESCO professionals will know, financial fragility is very often a driver to step up building energy efficiency measures in an effort to curb costs.

2. Austrian ESCO Market

The federal governments remain to be the main ESCO clients in Austria. Austria has run extensive renovation programs for public buildings through contracting (AEA 2011), but these have come to a halt (EC JRC 2012). The Austrian ESCO market has been one Europe's showcases from several perspectives. Market growth was rapid for a period (mid 1990s-2010) due to a number of large programs driven by the client side, mainly the federal governments. Policies and programs have been successful in creating framework for trust, competition and demand for improved energy efficiency within a short time. In recent years growth has stopped due to the decrease in federal programs and the Austrian market has halted. So far, the introduction of the ESCO concept in the private sector has not been successful. In the absence or reduction of large national and federal programs, it is unclear whether the Austrian market will be able to keep up its pace on a market basis.

3. Belgian ESCO Market

Belgium has a stable and slowly growing, though moderately sized, ESCO. The Belgian ESCO market is mainly driven by the efforts of the public ESCOs that act as market facilitators, ESCO project facilitators

and aggregators of projects and the impact of actual market forces are limited. Only few projects are initiated solely with private participants or contractors. However, the market is being increased slowly. Key problems lie with the policy support especially at the regional level for EPC and the fragmentation of the legislative frameworks.

4. Bulgarian ESCO Market

In spite of the particularly high energy saving potentials and rather advanced legislative framework for energy efficiency, the ESCO market in Bulgaria has still not found its way off the ground. A small ESCO market has been alive since 2000, mainly nurturing on the support, technical assistance and credit lines brought to the country by international organizations (such as the EBRD, World Bank, UNDP, USAID, etc.). While there are active companies with successful projects that could be replicated, the market has not yet seen a break-through. In spite of the favorable regulatory and financial environment the construction sector is on the ground and has not been able to revive after the crisis. Accordingly any related business, such as ESCOs experience problems.

According to the JRC's recommendations necessary changes to start-up the market are moralization of the state of the buildings, living conditions, illumination level to a level mandated by regulation; establishment of statistics, data collection and information about buildings; development of building level metering; awareness raising activities; white Certificates.

5. Croatian ESCO Market

The first ESCO in Croatia (HEP ESCO) was established by the World Bank and the Global Environmental Facility (GEF) in 2003 in the framework of the Energy Efficiency Project Croatia. By 2009, other small ESCOs were present in addition, besides a number of companies that occasionally dealt with "ESCO type projects". Political support has significantly grown in Croatia since 2012, and while the market did not change much during 2010-2013, market growth is expected by experts in the near future (EC JRC 2012). HEP ESCO, which still operated as one of the key ESCOs in 2013, is a public company owned by the Croatian utility company HEP. The core business of HEP ESCO is the development, implementation and financing of ESCO projects in Croatia (EC JRC 2012). Similar to Bulgaria all the sectors have large saving potentials due to the obsolete status of the building sector. In the public sector most of the buildings were constructed in the period 1945- 1990 under the old building codes used before 1987 (EC JRC 2012).

The results of tenders in the framework of the first/pilot phase of the "Retrofitting programme for public buildings" showed some of the barriers in practice that constrain the development of the Croatian market for energy services particularly in public sector: lack of well-prepared projects – database for public buildings is incomplete; insufficient number of energy service providers, and even these avoid taking over risks; problems with property rights and ownership of the buildings; verification of energy savings is not ensured.

6. Cyprus ESCO Market

The ESCO market in Cyprus has been described by previous reports from JRC as a low-hanging fruit that is not being deployed due to a number of basic barriers. This situation has not changed, and – according to the survey respondents – the financial crisis has further reduced the attention paid for energy efficiency (EC JRC 2012).

Cyprus has experienced the typical barriers of a beginner market. Main problems lie with the lack of supportive legislation, complex procurement rules that hinder energy efficiency projects, lack of information for companies, potential clients and the financial sector, and thus lack of trust (EC JRC 2012).

7. Czech Republic ESCO Market

According to the JRC, to be an ESCO success story of the early 2000s due to its impressive takeoff, the Czech energy services market is amongst the most advanced and mature ones in Europe as of 2013. The first ESCO projects took place already in 1993, but the market was given a worthy push around 2001 as a result of a combination of factors, including marketing by stakeholders and market facilitators, the legislative situation and international financial institutions.

While the ESCO market of the Czech Republic does not struggle with inescapable barriers in 2013, still much could be done to further strengthen the market and enable potential clients to participate. Areas in need of improvement include removal of legal barriers, improvement of monitoring systems, debt accounting and information dissemination.

8. Denmark's ESCO Market

Denmark is one of the most energy efficient countries in the EU and amongst the OECD economies. The ESCO market in Denmark was dormant until an impressive kick-start and the subsequent strong growth during the period 2007-2010 in spite of the financial crisis. As of 2013, there are about 15-20 companies that offer ESCO services in Denmark (EC JRC 2012). The key barrier of the Danish ESCO market 3 years ago was the lack of trust in the concept and the widespread availability of alternative means to achieve energy efficiency improvements. Today skepticism is still widespread, and 60% of the municipalities have chosen to carry out renovations with in-house expertise, which they evaluated to be more economical.

Transaction costs represent the central problem for ESCO projects today (and to energy efficiency renovation in general, although it is less highlighted in case of the internally handled projects). Even if everything is handled by the ESCO, internal staff must be trained and prepared for the project. Transaction costs are raised by the need for data collection and the lack of previously done benchmarking and documentation of earlier interventions (EC JRC 2012).

9. Estonian ESCO Market

The Estonian energy services market has not yet been able to take off primarily as a consequence of state grants and low interest rate loans available for energy efficiency in the public and residential sectors that compete with market-based offers. There are 3 small local companies in Estonia that deal with ESCO services as a supplementary business. As the barriers identified by the JRC the ESCO relevant regulation is missing in Estonia, as well as awareness of and available information about energy services. Furthermore, energy efficiency, including ESCO projects are small and thus transaction costs are high.

10. Finnish ESCO Market

The Finnish ESCO market began about 15 years ago, with only one service provider at that time. After a gradual progress between 2000 and 2010 a relatively stable, though small market established (Marino et

al. 2010; Siltainsuu 2012). The exact number of companies in Finland that include ESCO services on their portfolio is unknown but experts estimate that there are 5-6 ESCOs that are actually active companies.

The main barrier for further ESCO development is the existence of competing alternative solutions. There is no information which of the energy efficiency improvement means would be less costly for the society or provide a larger or easier energy saving result. Municipal buildings are typically in the hands of one central organization in bigger towns and cities, which is skilled enough and has the financial means to carry out energy efficiency investments on their own. In addition, they can borrow money below the ESCO financial rates, if necessary (EC JRC 2012).

11. France's ESCO Market

France is known as the cradle of energy service contracting in Europe that started with the provision of outsourced water and energy services. The French ESCO market is known to be large, stable and even growing with a noteworthy pace. The total number of ESCO-type companies is 350. The French ESCO market is dominated by large, creditable companies that have the internal financial means to finance projects if necessary, thus the role of banks is limited.

The most important barrier is the massive gap between the investment capacity of the public sector, worsened by the financial restrictions due to public budget contractions (EC JRC 2012), and the investment needs prescribed by the Grenelle laws⁵ to fulfill the objectives.

12. Armenia's ESCO Market

According to the "Armenia Building Energy Efficiency Market Assessment" report prepared in the framework of USAID program "Municipal Network for Energy Efficiency" in 2007, listed 11 ESCO companies that operate on Armenian ESCO market. They are private companies that provide different types of services such as: installation of heating, electric supply systems, HVAC, system maintenance, management consulting, design and planning, energy audits. Some of these private companies supported by the USAID-funded Energy Efficiency Demand Side Management Program established the Association of Armenian ESCOs⁶. The Armenian Market is much more developed for energy services compare to the markets of others South Eastern Countries. There are several ESCO companies that operate on the market, but they are still weak in terms of capacity and financial abilities.

13. Belarus ESCO Market

There is no specific legislation in place in Belarus, which regulates the energy services. However there are several companies which provide energy services on the basis of existing legislation. The ESCO activities will be regulated with the new Law on Electricity or with the new Law on Energy Savings that

⁵ The "Grenelle Environment" is a conference bringing together the government, local authorities, trade unions, business and voluntary sectors to draw up a plan of action of concrete measures to tackle the [environmental issue](#). The name "[Grenelle](#)" comes from the [first conference](#) bringing all these players together which took place in May 1968 in the Rue de Grenelle. France's Grenelle Law requires transport companies to inform the beneficiaries of their services of the CO₂ emissions related to the transportation of their goods. It applies to all transport services that originate or terminate at a French airport.

⁶ Scientific Research Institute of Energy 2007

are under approval. Most of the implemented projects involve improvements or reconstructions of heat energy supply systems and networks since the potential for energy savings in this sector are large due to the old equipment, the installation and the huge energy losses. Lack of legislation on energy services (ESCOs), regulation for heat supply and CHP as well as the lacking of energy efficiency regulation (standards and norms), constrain the development of market for energy services in Belarus (UN Economic Commission for Europe 2013). Covenant of Mayor initiative is considered by Belarus as one of the break-points to improve the ESCO market.

14. Georgia's ESCO Market

JRC report considers that the ESCO market in Georgia is not developed because of the lack of supporting legislation and interest for investment in energy efficiency project implemented on ESCO concept. However, the municipalities in Georgia became more and more interested in energy efficiency issues. Eight municipalities including the capital city Tbilisi already signed the Covenant of Mayors Initiative and some of them already started implementation of energy efficiency policies. More detailed analysis of Georgia's situation and recommendation of Remissia are provided in Annex III to this overview.

15. Moldova's ESCO market

The Moldovan ESCO market is still on the ground because of the absence of legislation, which is necessary to accept a common definition and regulation of the energy services and ESCO market. There are few engineering companies in Moldova that can provide some kind of energy services : consulting, design and construction of ecological and energy efficient houses, design and installation of heating and ventilation systems, installation of heating /cooling systems with heat pumps, installation and maintenance of equipment etc. These companies are working on donor financed turnkey contracts. Few of them can also provide energy audit for buildings (UN Economic Commission for Europe 2013).

In the absence of own funds, the involvement of third parties in the implementation of energy efficiency measures and, consequently, development of energy services market, has become a primary task (Government of Moldova 2013).

The Moldovan Energy Efficiency Agency which was established in December 2010 has been responsible for implementation of national energy efficiency policies and was appointed as implementation body for the NEEAPS Measure "Promotion of Energy Services".

Lack of secondary legislation is one of the main barriers for development of the ESCO model in Moldova. Full transposition of Energy Service Directive (now Energy Efficiency directive) should be priority in governmental policy. The Public Procurement Law shall be amended in order to enable public tendering of ESCO services. Therefore necessary is also amendment of Public Budget Law and adoption of new budget codes which will give precondition for ESCO investments in public buildings on national and municipality level (Government of Moldova 2013).

16. Russia's ESCO Market

The ESCO market in Russia is still in its early stage of development. The new energy efficiency legislation that has been implemented since 2009, has enabled rapid growth of ESCO market. The total number of ESCO companies that operating in Russia, is around 100 companies. They are distributed on the whole

Russian territory. However, the most of them (around 50) are operating in Central Federal District (including Moscow).

Although some of the legal barriers for ESCO development have been overcome through the new adopted legislation, there still legal barriers that constrain the rapid growth of the Russian ESCO market, which has a significant potential.

Barriers identified by the JRC for Russian ESCO market are very similar to Georgia's situation. These barriers are:

- Lack of trust. Financial institution and public sector are not confidential in ESCO concept and in private ESCOs. Industrial client prefer to undertake the projects themselves instead of outsourcing these to ESCOs;
- High project development costs for especially for those projects that are tendered under public procurement law;
- Lack of technical expertise and lack of experience for implementation and preparation of projects based on ESCO concept and tender documentation for EPC;
- Rather long period of project implementation;
- High risk of EPC implementation in public sector;
- Lack of methodology for selection and evaluation of energy projects as well as for implementation of system for monitoring, evaluation and verification of energy savings;
- Access to finance: ESCOs are struggling to get access to finance for implementing their projects. Russian commercial and state banks are reluctant to provide project finance to ESCOs while the appetite for asset-backed loans is very low among ESCOs. The potential for expansion of ESCO services is severely constrained in the absence of project finance opportunities.

17. Ukraine's ESCO Market

The ESCO market in Ukraine is still not developed although the first 10 ESCO companies were established in Ukraine in period 1997-1998. The economic growth from 2011 resulted with larger demand for energy services in industry and energy sector in Ukraine. The most frequently energy efficiency projects implemented by ESCO companies in industry are projects related to improvement and reconstruction of heat supply systems, reconstruction and modernization of compressed air production systems, modernization of pump stations, industrial process optimization and construction of cogeneration plants. Rarely covered are projects regarding improvement of installation for industrial cooling and waste heat recovery (Stepanenko n.d.). Energy audits constitute the basic services provided by ESCO companies in Ukraine. There is large demand on audits in industry as well as in the building sector. The development and implementation of legislation is necessary to create economically sound conditions for attracting domestic and foreign investments in EE projects. Implementation of SEAPs is also considered in case of Ukraine as an incentive for improvement EE and increasing in ESCO market.

ENERGY AGENCIES

Along with the ESCO market, Energy Agencies are acting in Europe which sometimes are real facilitators of ESCOs. Since EAs are often free of charge or cost only small fees, initial financial support for the agencies concerned is unavoidable (e.g. in the form of government grants, accumulated deficits, loans and advances, etc.). For this reason, they are often completely funded from public sources, especially if exclusively owned by public authorities. In this case, they are part of the public administration (as a department or subordinated agency). If some shares belong to private actors, the latter also contribute to the budget of the agency, which is then usually a non-commercial entity (i.e. a non-profit association or company). Different legal forms and shareholders of existing EAs are provided in Annex II to this report.

Many energy agencies remain dependent on continuous financial support even after the set-up phase (two to four years). In Europe, a significant number of the smaller local and regional agencies received funding through the EU program SAVE (the EU's main non-technological, multi-annual program on EE established in 1996), which was superseded in 2003 by the Intelligent Energy Europe (IEE) program; for the first three years, the program covered up to 50 percent of the set-up costs.

Unlike to the ESCOs and EPSCs, the Energy Agency model is more secure from the financial support point of view and less depends from market risks. Despite such low risks according to a study for the Executive Agency for Competitiveness and Innovation⁷ “several” of these agencies did not survive this initial period. Some of the most prominent examples of energy agencies in Eastern Europe received EU support in this way, all of them being non-commercial entities focusing on information and motivation services:

- Energy Agency of Plovdiv (EAP) in Bulgaria, founded in 2000;
- North-West Croatia Regional Energy Agency (REGEA), established in 2008 as a non-profit association by the City of Zagreb and three counties (Zagreb County, Karlovac County, Krapina-Zagorje County);
- Agency for Energy Efficiency and Renewable Energies Ploiești-Prahova (AE3R), Romania, again a non-profit association, set up in 2009 by the City of Ploiești and the Prahova County;
- ***SEVEN, located in Prague and founded as a non-profit consulting organization in 1990, is one of the rare exceptions illustrating a profit-oriented development: in 2007, the subsidiary company SEVEN Energy s.r.o. was set up to complement the activities of the original organization by pursuing a purely entrepreneurial approach.***

⁷<http://www.trt.it/english/Schede-progetti/Research/07p29-Fleat-en.pdf>

BARRIERS TO THE EE IMPROVEMENTS THROUGH ESCO SERVICES

Despite a large number of successful EPC projects has proven the efficiency of the model, the demand for energy services in Europe remained regularly below expectations.

According to the EU JRC the following barriers were identified in 2010 as common in several European countries:

- The legislative framework, including the public procurement rules: including the tendering process and limitations on the contract. Furthermore, complexity of the processes and selection practices caused problems. The model was not recognized by a number of authorities;
- The international accounting rules: which could restrict financing opportunities;
- The low and fluctuating energy prices;
- The financial crisis and economic downturn causing difficulties in accessing financing;
- The high perceived business and technical risk in relation to the following issues:
 1. the perceived risk that the energy efficiency interventions might compromise the core business related process;
 2. the competition of energy efficiency investments with core business related investments;
 3. the aversion to outsource energy management;
 4. the lack of flexibility and long commitment with ESCO contracts.
- The mistrust related to the lack of standardization:
 1. inhomogeneous ESCO offer;
 2. lack of competition;
 3. lack of experience of clients, ESCOs and financial institutions;
 4. absence of credible and visible reference cases with a clear client focus;
 5. unclear definitions and failed contracts;
 6. unstandardized measurements and verifications;
 7. complex and non standardized contracts.

Mistrust was also identified from the side of contractors towards clients, due to an increased risk of unstable and insolvent customers. Furthermore, partnerships between the ESCOs and subcontractors were marred as a result of financial difficulties of the construction sector in general, whereas many previously reliable companies went bankrupt or had change business.

SUCCESS FACTORS IDENTIFIED FOR ESCOS AND EAS

The following success factors were identified by JRC in 2010 as common in several European countries: The number of policies and dedicated actions set up with the objective of directly growing the ESCO market were limited. However a number of legislative, structural and market related changes were revealed as enabling factors by producing an indirect effect on the demand for energy efficiency services and their implementation.

1. Steady growth of energy price, partially due to rising energy taxes;
2. The liberalization of the energy markets had been underway since the last decade and it was considered an important enabling factor in order to create the right market conditions for ESCOs to emerge;
3. Structural and market related changes, such as the change in mindset towards the outsourcing of services such as energy management and public building facilities management;
4. The normal refurbishment and modernization needs (especially in the buildings sector);
5. Environmental awareness and related politics;
6. The establishment of ESCO associations combined with standardization efforts, dissemination of information and capacity buildings, lobbying.

Development and implementation of energy efficiency legislation including the regulation for ESCO can create condition for implementation of projects based on ESCO concept. The government also shall introduce incentives in order to stimulate the local and foreign companies to invest in ESCO projects. In the same time the international organization shall be involved in capacity building of local energy experts in public and business sector as well as in development of procedures and templates for EPC and public procurement for energy services. Capacity building for experts for preparation of financial products for EE can be also organized through international organization.

Promotion of energy services and ESCO especially on local level through campaigns supported by government can also raise the awareness of local authorities for energy services and ESCOs. In the last three years six Municipalities of Georgia (including the capitol city –Tbilisi) signed the Covenant of Mayors initiative, and submitted SEAPs.

Regarding Energy Agencies the authors' opinion is that it seems rather difficult to precisely pin down general success factors and obstacles for an energy agency cases, as success will also depend on the governments' programs and policies and the way in which they are implemented. Therefore a wider analysis of these programs is crucial factor in decision making on set-up (legal status, structure and financial support required) of EA. In general, the following success factors for energy agencies are highlighted in feasibility study:

- strong political commitment and support;
- access to knowledge (good working cooperation with universities and research institutions, set-up of internal databases, access to external expertise, transfer of know-how through participation in networks);
- financial stability and flexibility through partnerships with business (e.g. banking institutions and energy companies);
- a favorable legislative and regulatory environment;

- a qualified and motivated staff.

Based on the above analysis it could be concluded that for set-up of Sustainable Energy Offices (SEO) for the Covenant of Mayors (CoM) cities the focus should be done on *qualified and motivated staff* until the favorable legislation and regulatory environment is established at the national level. Strong political commitment of CoM cities at the EU level is also very important factor for success but this factor is weakened due to absence of national and local level regulations.

Berlin Energy Agency (BEA) is considered in the feasibility study for Tbilisi EA as one of the successful cases⁸. BEA is one of those energy agencies that engage in both information services and entrepreneurial activities, acting also as a profit-oriented energy service company. Established in 1992 as a LLC without generic public funding, it is an example of a well-functioning public-private partnership, with all four shareholders – the Federal State of Berlin and the state-owned KfW on the one hand and the privatized utilities Vattenfall Europe and GASAG on the other hand – holding a 25% share and being represented in the Board of Directors. Although BEA fulfils a public mandate, all means and methods of doing business are committed to the premise of efficiency. The agency disposes of a capital stock of 2.5m euros, which also means that it is easily able to use debt finance for projects. So far, BEA has realized about 10m euros in own projects, while its annual turnover amounts currently to 9.3m euros (with an operating result of about 526,000 euros in 2010).

Most of its turnover results from agency's activities in the field of energy supply contracting: in order to supply buildings with heat, power and refrigeration, BEA develops, installs, operates and finances efficient energy supply plants, especially modern micro CHP units. Moreover, eco-friendly electricity is generated by means of photovoltaic power plants on roof tops. As a result, BEA has been implementing PV and solar thermal systems, a biogas-fired micro CHP plant, and numerous natural gas-fired microCHP plants at about 70 sites in the Berlin region.

In addition to this, BEA is carrying out cost-effective consulting services, information and awareness raising campaigns among different target groups (e.g. for the promotion of solar thermal systems and CHP) as well as training and capacity-building activities: for example, it is managing an energy-saving initiative in care retirement homes focusing on changes in user behavior and the government-sponsored project 'Energy savings check in low-income households', in which long-term unemployed are trained to install energy-saving devices in needy households.

Furthermore, the benefit of an energy agency can also be illustrated by BEA's practical experience in the field of public lighting, in which the agency has been responsible for conceiving, implementing and evaluating the federal competition 'Energy-efficient urban lighting': initiated by the Federal Ministry for the Environment (BMU), the Federal Environmental Agency (UBA) and KfW, the competition's objective was to foster energy-efficient street lighting and to support and document best practices as 'lighthouse projects'. The first phase of the competition focused on energy-efficient technical solutions, the second one on municipal concepts for implementation. 180 municipalities took part, proposing 650 concepts for efficient urban outdoor lighting. 14 winning concepts were (or are being) implemented, leading to energy savings of up to 80% (60% by average).

⁸http://www.economicforum.ge/upload/files/Energy%20Agency%20Tbilisi_Feasibility%20Study_Final%20Version_21_12_2011.pdf

Above all, BEA has been helping the City of Berlin reduce energy costs by 2.7m euros per year: its 'Berlin Energy Saving Partnership' constitutes a successful model for energy performance contracting (EPC), which helps reduce both energy costs and GHG emissions in municipal buildings in times of tight public budgets.

CONCLUSIONS

For real success the ESCO's primary goal should be EE improvement and facilitation of EE technologies and money making (ensure self-sustainability) should be secondary, it should be result of the primary goal. In opposite way the risk of failing is very high.

Georgia imports 98% of its primary energy requirements of natural gas and oil products, which together meet about two thirds of the primary energy supply. Because of this and the relatively high energy intensity of its GDP, the competitiveness of Georgia's economy is particularly affected at times of high energy prices. (Energy Charter Secretariat. 2012)

Reducing the Energy dependence and energy intensity of the Country are strategic aims of the government. Energy efficiency can decrease the energy dependence and shall contribute to straightening of Georgian economy. Implementation of projects based on the ESCO concept can be a possible model for financing of EE.

Considering all barriers to the ESCO market existing in Georgia (Russian example) and having in consideration the history of ESCO markets development in various well developed countries it is less realistic to start such market development with ESCO concept based on commercial approach. Remissia considers it more realistic to start-up with Energy Agencies initially supported by public sector and international donors. Remissia agrees with the position of JRC that CoM initiative could become real catalyzer of future success in this direction. Establishment of regional or municipal level Energy Agencies in support to the local authorities in development and implementation of SEAPs seems quite realistic approach at this stage.-Remissia.

POTENTIAL FINANCIAL SOURCES FOR EA/SEO SET-UP PHASE IN GEORGIA

At the United Nations Climate Summit Finance Session in September 2014 the bank of America announced a Catalytic Finance Initiative, designed to stimulate at least \$10 billion of new investment into high-impact clean energy projects. The initiative will focus on developing or advancing innovative financing structures that reduce investment risk, thereby attracting a broader range of institutional investors.

“We want to take a leadership role in helping remove barriers to investment in clean energy projects around the world,” said Brian Moynihan, Bank of America chief executive officer. “The capital we commit and our strong global client and institutional investor relationships can lead to considerable additional investments in a lower carbon future.” Moynihan was the only U.S. CEO who spoke At the United Nations Climate Summit Finance Session.

As part of the initiative, Bank of America will commit \$1 billion in capital to investment structures that employ a range of de-risking tools, developed in conjunction with development finance institutions (DFIs), insurance providers, foundations and institutional investors. The goal of the initiative is to make clean energy investments more financeable, particularly in emerging markets where project impact is often amplified – addressing other large-scale issues like health, education and job creation.

The Catalytic Finance Initiative will broaden the impact of the bank’s work with partner organizations and ensure that at least \$10 billion of incremental capital is deployed in investments in renewable energy, energy efficiency and energy access. It will target primarily larger-scale financing opportunities that use de-risking structures such as first loss and mezzanine tranches, risk guarantees and new insurance products to crowd-in capital that would not otherwise be deployed in this sector. The bank will also explore opportunities to work with foundations and impact-focused clients to support smaller, energy access opportunities, using innovative catalytic first-loss capital and other forms of credit support.

European Commission President José Manuel Barroso will tomorrow co-sign joint declarations in New York to reinforce energy cooperation with five African countries: Cabo Verde, Côte d'Ivoire, Liberia, Togo and Rwanda. These agreements will aim to increase access to sustainable energy sources, even in rural areas where the needs are the greatest.

For the period 2014-2020 about 30 developing countries have chosen energy as a focal sector for their cooperation with the EU. In addition, other countries will also receive substantial allocations in the field of energy where this has not been defined as a focal sector. In total, around €3.3 billion will be dedicated to supporting sustainable energy in the EU’s partner countries around the globe, through bilateral and regional cooperation. This is expected to leverage between €15 and €30 billion in loans and equity investment to fill gaps in energy infrastructure and power businesses, schools, homes and hospitals. Around 2 billion euro will be dedicated to African countries.

European Development Commissioner, Andris Piebalgs, highlighted that: "Without energy, factories cannot function, schools cannot be lighted up and families cannot cook, and this is a situation that many

people are still facing today. But it is equally important that sustainable energy sources are promoted first and foremost.”

There are already active initiations promoting EE and RES in EU and partner countries.

The EIB (European Investment Bank) provides the public and private sectors with a wide range of financial instruments for energy efficiency investments within and outside the EU. According to the statement by the Bank they have increased the volume of intermediated lending, including framework loans, available through financial intermediaries in the banking sector or through public authorities, energy service companies or public-private partnerships. EIB provides indirect financing to energy efficiency projects via investment funds that have different geographical coverage and are established with the private sector and a range of international financial institutions.

The Green for Growth Fund was launched in 2009 together with EIB and KfW to provide financing, including loans, equity and technical assistance, for sustainable energy projects in the Western Balkans and Turkey. EIB also use risk-sharing instruments combining loans with grants and providing technical support, partnering with the European Commission and national authorities. Examples are GEEREF, the Global Energy Efficiency and Renewable Energy fund of funds – active in African, Caribbean and Pacific countries as well as in Latin America, Asia and the EU neighborhood countries – and the EEEF (European Energy Efficiency Fund) launched jointly with the European Commission and other investors in 2011 to provide finance for sustainable energy projects.

To support project preparation and operation, EIB manages and participates in several initiatives and programs. ELENA (European Local Energy Assistance) forms part of the bank broader effort to support the EU's climate and energy policy objectives. This initiative, managed by the EIB and funded by the Commission, helps local and regional authorities to prepare large-scale energy efficiency and renewable energy projects. Main sectors financed by ELENA are:

- EE and RES investment in public and private buildings, including social housing and street and traffic lighting;
- Urban transport to support increased energy efficiency and integration of renewable energy sources;
- Local energy infrastructure to support developments in previous sectors including smart grids, ICT, etc.

Eligible activities for ELENA are: additional Feasibility Studies; additional technical staff; technical studies; procurement/tendering (e.g. for ESCO projects); financial structuring.

European Energy Efficiency Fund (EEE-F). 125 Mio EC and 75 Mio EIB. Investment Fund under Luxembourgish law Managed by a fund manager. *Combined with a dedicated 20 Mio € TA facility and 70% of the investment shall be targeted towards Energy Efficiency in buildings.*

Another important initiative is JESSICA – Joint European Support for Sustainable Investment in City Areas, which is an innovative initiative that uses existing structural fund grant allocations to support urban development including energy efficiency projects.

ANNEX I

The following table provides an overview of the legal form of existing energy agencies and shareholders for some of them.

| Energy Agency | Catchment area | Legal form | Shareholders | Fields of activity |
|--|-----------------------------|---|--|---|
| National level | | | | |
| ADENE | Portugal | Non-profit LLC | - Portugal (Ministry of Economics) (69.66%) - EDP and Galp Energia (utilities) (22%) | - Information and motivation services Bureau of Energy Efficiency |
| Bureau of Energy Efficiency | India | LPPL (subordinated to the Ministry of Power) | - India (Ministry of Power) | - Information and motivation services - Government tasks |
| European-Ukrainian Energy Agency (EUEA) | Ukraine | Non-profit association | - Ministry of Agriculture - State Agency for Investments and Development - regional and local authorities - a wide range of companies of the sector, etc. | - Information and motivation services |
| German Energy Agency (dena) | Germany | LLC | - Germany (50%) - KfW (26%) - Allianz SE (8%) - Deutsche Bank AG (8%) - DZ BANK AG (8%) | - Information and motivation services - Entrepreneurial activities |
| Serbian Energy Efficiency Agency (SEEA) | Serbia | LPPL | - Serbia | - Information and motivation services |
| Swiss Federal Office of Energy (BfE) | Switzerland | Subordinated state department | - Switzerland (Ministry for the Environment) | - Information and motivation services - Government tasks |
| Regional and local level | | | | |
| Agency for Energy Efficiency and Renewable Energies Ploiești-Prahova | Ploiești- Prahova (Romania) | Non-profit association | - City of Ploiești - Prahova County | - Information and motivation services |

| | | | | |
|---|----------------------------------|---|---|---|
| (AE3R) | | | | |
| ARENE | Ile-de-France (France) | Non-profit association | - Ile-de-France Region - agencies of the region - environmental associations - professionals of the sector, etc. | - Information and motivation services |
| Berlin Energy Agency | Berlin (Germany) | LLC | - Berlin (25%) - KfW (25%) - GASAG (utility) (25%) - Vattenfall (utility) (25%) | - Information and motivation services - Entrepreneurial activities |
| California Energy Commission | California (USA) | Subordinated state department | - California | - Information and motivation services - Government tasks |
| Energy Agency NRW | North Rhine-Westphalia (Germany) | Non-profit LLC | - TUV Nord (50%) - agiplan (50%) | - Information and motivation services |
| Energy Department Frankfurt | Frankfurt (Germany) | Municipal administrative unit | - City of Frankfurt | - Information and motivation services |
| HKR Energy Unit | Helsinki (Finland) | Municipal administrative unit | - City of Helsinki | - Information and motivation services |
| ICAEN | Catalonia (Spain) | LPPL (subordinated to the Ministry of Economics and Finance) | - Catalonia | - Information and motivation services - Government tasks - Entrepreneurial activities |
| KliBA | Heidelberg (Germany) | Non-profit LLC | - 16 municipalities - Sparkasse Heidelberg (bank) | - Information and motivation services |
| North-West Croatia Regional Energy Agency (REGEA) | North-West Croatia (Croatia) | Non-profit association | - City of Zagreb - Zagreb County - Karlovac County - Krapina-Zagorje County | - Information and motivation services |

ANNEX II

The table below demonstrates the development status of ESCO markets in different EU and non-EU countries⁹.

Table 2. The development status of the ESCO markets in 2010 and 2013, and the change between 2010 and 2013.

| EU | development status* | change since 2010** |
|---------------------------------|----------------------------|--------------------------------|
| Austria | good | stable (or slowly decreasing) |
| Belgium | moderate | slow growth |
| Bulgaria | preliminary | unchanged |
| Croatia | preliminary | slow growth |
| Cyprus | not existent | unchanged |
| Czech Republic | good | slow growth |
| Denmark | moderate | strong growth |
| Estonia | not existent | unchanged |
| Finland | moderate | unchanged |
| France | good | strong growth |
| Germany | good | slow growth |
| Greece | preliminary | slow growth |
| Hungary | preliminary | strong decrease |
| Ireland | preliminary | strong growth |
| Italy | moderate | slow growth |
| Latvia | preliminary | unchanged |
| Lithuania | preliminary | unchanged |
| Luxembourg | preliminary/not existent | unchanged |
| Malta | not existent | unchanged |
| The Netherlands | preliminary | slow growth (or slow decrease) |
| Poland | preliminary | slow growth |
| Portugal | preliminary | slow growth |
| Romania | preliminary | slow growth |
| Slovakia | preliminary | slow growth |
| Slovenia | preliminary | slow growth |
| Spain | preliminary | strong growth |
| Sweden | preliminary | slow growth (or slow decrease) |
| United Kingdom | good | balanced growth |
| Other European countries | | |
| Norway | preliminary | slow growth (but volatile) |
| Switzerland | preliminary | slow growth |
| Southeastern Europe | | |
| Albania | not existent | unchanged |

⁹ Table is from EU JRC report on 2013 ESCO markets

| | | |
|---|--------------------------|--------------------------------|
| BiH | preliminary | slow growth |
| FYR Macedonia | not existent | unchanged |
| Kosovo | not existent | unchanged |
| Montenegro | not existent | unchanged |
| Serbia | preliminary/not existent | stagnation (or slow growth) |
| Turkey | preliminary | slow growth |
| Eastern Europe and Transcaucasia | | |
| Armenia | preliminary | slow growth |
| Belorussia | preliminary/moderate | n/a |
| Georgia | not existent | unchanged |
| Moldova | not existent | unchanged |
| Russia | preliminary/moderate | slow growth (or slow decrease) |
| Ukraine | preliminary/moderate | slow growth |

ANNEX III

Georgian ESCO market 2013

The ESCO market in Georgia is not developed because of the lack of supporting legislation and interest for investment in energy efficiency project implemented on ESCO concept. However, the municipalities in Georgia became more and more interested in energy efficiency issues. Six municipalities including the capital city Tbilisi already signed the Covenant of Mayors Initiative and started with implementation of energy efficiency policies.

Current ESCO market

There are no ESCO companies operating on the Georgian energy market. The lack of know-how for energy services and low knowledge for energy efficiency in general, are the factors which constrain development of ESCOs. In last few years with the support of foreign donor organizations projects have been implemented related to capacity buildings and training for local experts and local administration regarding energy efficiency issues.

In the frame work of the Georgian –Norwegian Capacity Building Programme on Energy Efficiency in 2003 was established the Energy Efficiency and Cleaner Production Centre, a non-governmental and non-profit organization, which mission have been to enhance activity of the engineering staff of Georgian enterprises in the direction of saving resources and as a result to reduce waste and decrease environmental pollution. The program included two sub-programs (Energy Efficiency and Cleaner Production Centre 2013):

- Energy Efficiency in Buildings (EAB);
- Municipal Energy Efficiency Planning (MEEP).

The overall aim of the sub-project: "Energy Efficiency in Buildings" is to contribute to increased energy efficiency in private and public buildings and facilities in Georgia.

The main activities were (Energy Efficiency and Cleaner Production Centre 2013):

- Updating/Development of manuals and tools. The latest version of Energy Savings International (ENSI) manuals, tools and software for energy auditing of buildings were updated and translated. Energy Auditing of Building Software (EAB) Textbook was updated, translated and published;
- Training. The local EAB Team (in total 10 persons) were trained on updated and new methods, tools and software for energy efficiency in buildings and energy auditing;

In 2007 the MEEP program prepared baseline evaluations for municipal energy consumption in buildings and drafted the first version of the Municipal Energy Efficiency Plan. In July 2008, the final draft of Municipal Energy Efficiency Plan for Tbilisi City was completed and presented to City Administration. The Municipal Energy Efficiency Plan is an important tool for municipal decision-makers, authorities and developers when planning for renovation and upgrading of municipal facilities by allowing them to target the most energy consuming objects and make action plans accordingly. (Energy Efficiency and Cleaner Production Centre 2013).

Types of ESCO projects

They are no example of energy saving or energy efficiency projects implemented on the basis of ESCO concept in Georgia.

Regulatory factors

Energy services and ESCOs are not regulated by the Georgian legislation. The legislation related to energy efficiency also has been not adopted.

Work on the drafting of an energy efficiency law was well-advanced before it was abandoned by the government in 2008. At the time of writing the Ministry of Energy has no formal sustainable energy or energy efficiency executive agency within its responsibility or budget provision for the implementation of sustainable energy programmes. Nor is there any provision for such in the “Priorities for Government 2009-2012”. (Energy Charter Secretariat 2012)

Winrock International – a USAID subcontractor – has worked with the government authorities since 2007 and a draft for an Energy Efficiency Law was developed with the cooperation of the Ministry of Energy and the NGO, “World Experience for Georgia” (WEG). The law was ready to go before the Parliament of Georgia in the autumn of 2008. (Energy Charter Secretariat 2012)

The Georgian Policy and Legal Advice Centre (GEPLAC), financed by the EU, has assisted the government on energy policy and legislation, most recently in the preparation of a law on energy efficiency. (Energy Charter Secretariat 2012)

Market factors

Georgia imports 98% of its primary energy requirements of natural gas and oil products, which together meet about two thirds of the primary energy supply. Because of this and the relatively high energy intensity of its GDP, the competitiveness of Georgia’s economy is particularly affected at times of high energy prices. (Energy Charter Secretariat. 2012)

Reducing of the Energy dependence and energy intensity of the Country are strategic aims of the government. Energy efficiency can decrease the energy dependence and shall contribute to straightening of Georgian economy. Implementation of projects based on the ESCO concept can be a possible model for financing of EE.

Information, awareness and demonstration

Local representative from the municipal sector, industry and decision-makers often lack of information on the practical options for energy efficiency that will influence their business in positive way. (Energy Efficiency and Cleaner Production Centre.2013)

In the framework of the Georgian –Norwegian Capacity Building Programme on Energy Efficiency materials (project brochures, guidelines, reports) of the implemented projects had been disseminated.

- A Demonstration project was implemented in the Khidistavi School (located near Gori). Installation of the heating system and PVC double glazed windows in the classrooms and Renewable Power Source (wind power generator 400 W and PV system 125 W) had been carried out.

- Dissemination/Experience sharing. A dissemination seminar was organized where project results were shared with local stakeholders, governmental representatives and international organizations.

Financing ESCO projects

There are no special funds or financial products developed by local commercial bank for financing of ESCOs in Georgia.

The one example for financing of energy efficiency project has been the Revolving Fund (RF) established by Georgian–Norwegian Capacity Building Programme. This fund financed through small loans energy efficiency measures in private production companies (milk or bread factories). The maximum loan taken by companies was 7,000 USD.

Barriers

The barriers for development of ESCO market in Georgia are:

- Lack of legislation for ESCO ;
- Lack of public procurement regulation for procurement of energy services;
- Lack of financial products provided by banks for energy efficiency projects and ESCOs;
- Lack of know-how and experience for energy services and ESCO among all relevant stake holders: National and local authorities, business sector, financial institutions and experts community;
- Lack of demonstration projects implemented on ESCO concept;

Conclusions and future expectations

Development and implementation of energy efficiency legislation including the regulation for ESCO can create condition for implementation of projects based on ESCO concept. The government also shall introduce incentives in order to stimulate the local and foreign companies to invest in ESCO projects.

In the same time the international organization shall be involved in capacity building of local energy experts in public and business sector as well as in development of procedures and templates for EPC and public procurement for energy services. Capacity building for experts for preparation of financial products for EE can be also organized through international organization.

Promotion of energy services and ESCO especially on local level through campaigns supported by government can also raise the awareness of local authorities for energy services and ESCOs. In the last three years six Municipalities¹⁰ of Georgia (including the capitol city –Tbilisi) signed the Covenant of Mayors initiative, and submitted SEAPs.

¹⁰Recently Georgia has eight CoM signatory cities